CALCIUM
CONSUMER FACT SHEET

Calcium-rich foods include milk, cheese, and yogurt; vegetables like kale, broccoli, and Chinese cabbage; and canned sardines and salmon with soft bones that you eat.

Calcium is a mineral found in many foods. The body needs calcium to maintain strong bones and to carry out many important functions. Almost all calcium is stored in bones and teeth, where it supports their structure and hardness.

The body also needs calcium for muscles to move and for nerves to carry messages between the brain and every body part. In addition, calcium is used to help blood vessels move blood throughout the body and to help release hormones and enzymes that affect almost every function in the human body.

How much calcium do I need?

The amount of calcium you need each day depends on your age. Average daily recommended amounts are listed below in milligrams (mg):

Birth to 6 months	210 mg
Infants 7–12 months	270 mg
Children 1–3 years	500 mg
Children 4–8 years	800 mg
Children 9–13 years	1,300 mg
Teens 14–18 years	1,300 mg
Adults 19–50 years	1,000 mg
Adults 51 years and older	1,200 mg
Pregnant and breastfeeding teens	1,300 mg
Pregnant and breastfeeding adults	1,000 mg

What foods provide calcium?

Calcium is found in many foods. You can get recommended amounts of calcium by eating a variety of foods, including the following:

- Milk, yogurt, and cheese are the main food sources of calcium for the majority of people in the United States.
- Kale, broccoli, and Chinese cabbage are fine vegetable sources of calcium.
- Fish with soft bones that you eat, such as canned sardines and salmon, are fine animal sources of calcium.
- Most grains (such as breads, pastas, and unfortified cereals), while not rich in calcium, add significant amounts of calcium to the diet because people eat them often or in large amounts.
- Calcium is added to some breakfast cereals, fruit juices, soy and rice beverages, and tofu (check the product labels).

What kinds of calcium dietary supplements are available?

Calcium is found in many multivitamin-mineral supplements, though the amount varies by product. Dietary supplements that contain only calcium or calcium with other nutrients

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such as vitamin D are also available. Check the Supplement Facts label to determine the amount of calcium provided.

The two main forms of calcium dietary supplements are carbonate and citrate. Calcium carbonate is inexpensive, but is absorbed best when taken with food. Some over-the-counter antacid products, such as Tums® and Rolaids®, contain calcium carbonate. Each pill or chew provides 200–400 mg of calcium. Calcium citrate, a more expensive form of the supplement, is absorbed well on an empty or a full stomach. In addition, people with low levels of stomach acid (a condition more common in people older than 50) absorb calcium citrate more easily than calcium carbonate. Other forms of calcium in supplements and fortified foods include gluconate, lactate, and phosphate.

Calcium absorption is best when a person consumes no more than 500 mg at one time. So a person who takes 1,000 mg/day of calcium from supplements, for example, should split the dose rather than take it all at once.

Calcium supplements may cause gas, bloating, and constipation in some people. If any of these symptoms occur, try spreading out the calcium dose throughout the day, taking the supplement with meals, or changing the supplement brand or calcium form you take.

Am I getting enough calcium?

Many people don't get recommended amounts of calcium from the foods they eat. This includes women and teenage girls as well as men 60 years of age and older.

Certain groups of people are more likely than others to have trouble getting enough calcium:

- Postmenopausal women because they experience greater bone loss and do not absorb calcium as well. Sufficient calcium intake from food, and supplements if needed, can slow the rate of bone loss.
- Women of childbearing age whose menstrual periods stop (amenorrhea) because they exercise heavily, eat too little, or both. They need sufficient calcium to cope with the resulting decreased calcium absorption, increased calcium losses in the urine, and slowdown in the formation of new bone.
- People with lactose intolerance cannot digest this natural sugar found in milk and experience symptoms like bloating, gas, and diarrhea when they drink more than small amounts at a time. They usually can eat other calcium-rich dairy products that are low in lactose, such as yogurt and many cheeses, and drink lactose-reduced or lactose-free milk.
- Vegans (vegetarians who eat no animal products), because they avoid the dairy products that are a major source of calcium in other people's diets.

Many factors can affect the amount of calcium absorbed from the digestive tract, including:

- **Age.** Efficiency of calcium absorption decreases as people age. This explains the higher recommended calcium intakes for people aged 50 and older.
- **Vitamin D intake.** This vitamin, present in some foods and produced in the body when skin is exposed to sunlight, increases calcium absorption.
- **Other components in food.** Both oxalic acid (in some vegetables and beans) and phytic acid (in whole grains) can reduce calcium absorption. People who eat a variety of foods don't have to consider these factors. They are accounted for in the calcium recommended intakes, which take absorption into account.

Many factors can also affect how much calcium the body eliminates in urine, feces, and sweat. These include consumption of alcohol- and caffeine-containing beverages as well as intake of other nutrients (protein, sodium, potassium, and phosphorus). In most people, these factors have little effect on calcium status.

What happens if I don't get enough calcium?

Insufficient intakes of calcium do not produce obvious symptoms in the short term because the body maintains calcium levels in the blood by taking it from bone. Over the long term, intakes of calcium below recommended levels have health consequences, such as causing low bone mass (osteopenia) and increasing the risks of osteoporosis and bone fractures.

Symptoms of serious calcium deficiency include numbness and tingling in the fingers, convulsions, and abnormal heart rhythms that can lead to death if not corrected. These symptoms occur almost always in people with serious health problems or who are undergoing certain medical treatments.

What are some effects of calcium on health?

Scientists are studying calcium to see how it affects health. Here are several examples of what this research has shown.

Bone health and osteoporosis

Bones need plenty of calcium and vitamin D throughout childhood and adolescence to reach their peak strength and calcium content by about age 30. After that, bones slowly lose calcium, but people can help reduce these losses by getting recommended amounts of calcium throughout adulthood and by having a healthy, active lifestyle that includes weight-bearing physical activity.

Osteoporosis is a disease of the bones in older adults (especially women) in which the bones become porous, fragile, and more prone to fracture. Osteoporosis is a serious public health problem for more than 10 million adults in the United States. Adequate calcium and vitamin D intakes as well as regular exercise are essential to keep bones healthy throughout life.

High blood pressure

Some studies have found that getting recommended intakes of calcium can reduce the risk of developing high blood pressure (hypertension). One large study in particular found that eating a diet high in low-fat and fat-free dairy products, vegetables, and fruits lowered blood pressure.

Cancer

Studies have examined whether calcium supplements or diets high in calcium might lower the risks of developing cancer of the colon or rectum or (in men) increase the risk of prostate cancer. The research to date provides no clear answers. Given that cancer develops over many years, longer term studies are needed.

Kidney stones

Most kidney stones are rich in calcium oxalate. Some studies have found that higher intakes of calcium are linked to a greater risk of kidney stones, but others have found that higher intakes are associated with a lower risk. For most people, other factors (such as not drinking enough fluids) have a larger effect on the risk of kidney stones than calcium intake.

Weight loss

Several studies have shown that getting more calcium helps lower body weight or reduce weight gain over time. However, the best studies have found that calcium—from foods or dietary supplements—has little if any effect on body weight and amounts of body fat.

Can calcium be harmful?

Up to 2,500 mg/day of calcium from foods and dietary supplements is considered to be safe for both children and adults.

When the amount of calcium in the blood is too high, it can damage the kidneys and reduce the absorption of other essential minerals such as iron, zinc, magnesium, and phosphorus. Such high levels of calcium are rarely caused by getting too much calcium from foods or dietary supplements but, rather, by advanced cases of cancer, very excessive intakes of vitamin D from supplements, or hyperparathyroidism.

Are there any interactions with calcium that I should know about?

Calcium dietary supplements can interact or interfere with certain medicines that you take, and some medicines can lower or raise calcium levels in the body. Here are some examples:

- Calcium can reduce the absorption of these drugs when taken together:
  - Bisphosphonates (to treat osteoporosis)
  - Antibiotics of the fluoroquinolone and tetracycline families
  - Levothyroxine (to treat low thyroid activity)
  - Phenytoin (an anticonvulsant)
  - Tiludronate disodium (to treat Paget's disease).
- Diuretics differ in their effects. Thiazide-type diuretics (such as Diuril® and Lozol®) reduce calcium excretion by the kidneys, which in turn can raise blood calcium levels too high. But loop diuretics (such as Lasix® and Bumex®) increase calcium excretion and thereby lower blood calcium levels.
- Antacids containing aluminum or magnesium increase calcium loss in the urine.
- Mineral oil and stimulant laxatives reduce calcium absorption.
- Glucocorticoids (such as prednisone) can cause calcium depletion and eventually osteoporosis when people use them for months at a time.

Bottom line: Tell your doctor, pharmacist, and other healthcare providers about any dietary supplements and medicines you take. They can tell you if those dietary supplements might interact or interfere with your prescription or over-the-counter medicines or if the medicines might affect how your body uses calcium.

Where can I find out more about calcium?

- Office of Dietary Supplements Health Professional Fact Sheet on Calcium.
- Office of Dietary Supplements Calcium QuickFacts.
- For more advice on buying dietary supplements, see the Office of Dietary Supplements Frequently Asked Questions.
- For more information on the government's food guidance system, see MyPyramid and the Dietary Guidelines for Americans.

Disclaimer

This fact sheet by the Office of Dietary Supplements provides information that should not take the place of medical advice. We encourage you to talk to your healthcare providers (doctor, registered dietitian, pharmacist, etc.) about your interest in, questions about, or use of dietary supplements and what may be best for your overall health.